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ABSTRACT

This study compared the actual resource costs and outcomes of instruction in inclusive classrooms with the costs and outcomes of special class/integrated instruction in a California school district where both types of programs were operating. Four students included in general elementary education classrooms were matched with four pupils from special education classes who spent part of their day in general education classes. Results showed that inclusive education costs were an average of 13 percent lower than those of special class placement. Comparison of general and special education resource contributions found that special education contributed only 65 percent as much of total program costs for included students when compared with special class pupils. Also, special education contributed an average of $1,655 per general education inclusive class, compared with less than $35 per class where special class students were partially integrated. Analysis of student outcomes indicated that included students interacted more with peers and general education teachers and less with special education staff than the partially integrated group, but special class students demonstrated more student-initiated interaction and a higher level of engagement. There were no differences in perceived achievement of student educational objectives. (Contains 19 references.) (DB)

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A Cost-Benefit Comparison of Inclusive and Integrated Classes in One California District

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ABSTRACT

A study comparing the actual resource costs and outcomes of instruction in inclusive classrooms with the costs and outcomes of special class/integrated instruction was conducted in a single district where both types of programs were operating. Data related to these variables were collected on elementary-aged students included full-time in general education classrooms matched with four pupils from special education classes who spent part of their day in general education classes. Programs were selected through an observation and interview process using validated criteria for inclusive best practices, and students were selected through teacher evaluation of adaptive behavior on a standardized scale. Instrumentation was developed for cost data collection and analysis, and for achievement perceptions. Additional observational measures were utilized to examine student interaction and engaged time. The results showed that inclusive education costs were an average of 13% lower than those of special class placement, with sizable differences in areas such as space and personnel costs where special class costs were 228% and 31% higher respectively. A second striking difference was found in terms of general and special education resource contributions to the two programs, with special education contributing only 65% as much of total program costs for included students as compared with special class pupils. In turn, special education contributed an average of $1,655 per general education inclusive class, as compared with less than $35 per class where special class students were integrated.

Multiple differences in outcomes for students were found in social interaction and engaged time areas, with included students interacting more with peers and general education teachers, and less with special education staff than the

integrated group. More academic activity characterized the inclusive students' programs, and they were alone less. Special class students demonstrated more student-initiated interaction and a higher level of engagement during the observed instructional day. There were no differences found between the two groups in perceived achievement of IEP objectives. Results were discussed in terms of the pilot nature of the study and its inherent limitations given sample size, as well as questions for further research.

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A Cost-Benefit Comparison of Inclusive and Integrated Classes in One California District

Introduction

A cost-benefit pilot study comparing inclusive and integrated elementary school programs in a single district was conducted as one facet of the PEERS OUTREACH Inclusive Education project (#HO 86U20023) evaluation. The purpose of the evaluation was to determine whether differences exist a) in actual costs of inclusive (general education placement with support) versus integrated (special education class placement with integration into general education classes for some activities) settings, and b) in educational outcomes of the two placements for matched pairs of students who experience severe disabilities.

The rationale for the study was grounded in the critical need for this type of information in the field, at the State Department of Education, for the Boards of Education, families, administrators, and teachers involved in planning and developing effective inclusive options, as evidenced by repeated requests to the project for data on this topic. There is a gap in the current knowledge base regarding the type and levels of support typically required to deliver effective instructional services to included students and how these levels/types of support compare with those received by students placed in specialized or segregated settings (Parrish & Montgomery, 1995; Salisbury and Chambers, 1994). In addition, "conventional wisdom" says that inclusive programs by their very nature will necessitate higher support ratios and thus present districts with greater costs. Further, there is concern in the field of special education that including students in general education classrooms will result in less positive educational outcomes for those students than they might receive in special classes (cf. Fuchs and Fuchs, 1994).

Several hypotheses were generated regarding the outcomes of the pilot cost benefit analysis. **First, we hypothesized that inclusive educational programming would not cost significantly more than integrated or special class placements for students with similar needs.** The remaining hypotheses were related to the programmatic outcomes of inclusive education:

1) students who were included would demonstrate at least the same level of achievement of IEP objectives as integrated students;

2) students who were included would demonstrate higher levels of reciprocal interactions than their integrated peers, and higher levels of student-initiated reciprocal interactions, as measured by observational data;

3) included students' interactions with special education teachers and paraprofessionals would be less than for their integrated peers;

4) included students' interactions with the general education classroom teacher and general education peers would be greater than those of their integrated peers from special classes;

5) included students would be alone less (with others more) than their peers in integrated programs, and would be more actively involved; and

6) included students would have more academic skill emphasis or instructional time than integrated students.

Method

Participants

Selection of the district. The study was conducted in a suburban-rural central district of approximately 14,000 students who attend 21 elementary, two middle, and two high schools. All students who receive special education services in the district are receiving them in regular schools either through special classes in chronologically age-appropriate sites (integration), through Resource Specialist programs, or through itinerant support services delivered in general education classes (inclusion). Elementary school size ranges from small (enrollment = 150) to large (enrollment = 750). This district was selected for a variety of reasons related to the study's goals:

1) The district had worked with the project for several years, and the investigators were thus well aware of the quality of instruction in inclusive and integrated settings.

2) As the district was a recipient of project services, the study would also serve as part of the overall project's evaluation.

3) The district was the sole operator of the special education programs; thus, a single governance and salary structure existed, resulting in equivalence of cost data collected across programs.

4) The district operated both inclusive (general education class) and integrated (special class) programs for elementary age students at the time of the study, and district staff were interested in participating in the pilot evaluation.

Finally, this was the only district with which the project was involved at the time which had both a single governance structure and was operating the two types of educational options concurrently for students of the same age levels.

School Selection. Included students in the selected district were attending general education classes in two different elementary schools; a small rural setting (School A) and a large downtown school (School B). Included students in Schools A and B were served by the same special education support teacher and paraprofessional staff who worked in an itinerant manner (i.e., the special education teacher had two schools and nine students for whom she was responsible, in nine different classrooms; she had two paraprofessionals [six hours each per day] working with her and all worked with both schools). All included students were attending their home schools - the schools they would attend if they were not disabled (Neary and Halvorsen, 1994; Sailor, Gee and Karasoff, 1993).

Students attending special classes with varying amounts of integration within general education were attending a third large elementary school near the downtown area (School C). The students in these two special education classes were served by two full-time teachers and four paraprofessionals (six hours each per day) with eight to ten students in each class. One class served primary age students (K - 2) and the other served intermediate grades (3rd - 6th). While not the home school for

all of these students, the school was located within the quadrant of the district where students' homes were located.

The investigators utilized the OUTREACH Implementation Site Criteria for Inclusive Programs (Halvorsen & Neary, 1994) to guide observation and interviews and limited informal document review (student and staff schedules, etc.) in each setting. A preset criteria of no more than a 10% difference in points across sites (15 points) was agreed to for purposes of comparison. The two raters spent a full day in these activities at each location, and then met to share data and compare ratings and observations. Agreement was reached using a three-point scale with three, two or one points for each of the 50 items. The inclusive program (across two schools) obtained a score of 141/150; the special class program obtained a score of 126/150.

Student Selection. The inclusive program in the targeted district had nine students (grades K - 6) included in Schools A and B, six of whom were classified as having severe disabilities. The special classes at School C had 18 students; approximately half of whose ages corresponded to grades K - 2 (one class) and half of whose ages corresponded to grades three through six (one class).

The investigators obtained parental permission for participation in the study by four of the included students with severe disabilities. The students were three girls and one boy. One boy and one girl were in kindergarten, and two girls were in second and fourth grades. Investigators administered the 32-item Scales of Independent Behavior (SIB) to each of these students (Bruininks, Woodcock, Weatherman & Hill, 1985). The scale yields a raw score which is converted into standard and cluster difference scores . The second step of the student selection process was to identify students in the special class group whose scores would match

as closely as possible a student of approximately the same age in the included group. From this process four pairs were identified and their scale data are depicted in Table 1. The special class integrated students included a kindergarten-age boy, a second-grade-age girl, a third-grade-age boy and a fifth-grade-age boy.

[Insert Table 1 here]

Table 1

Screening Data: Scales of Independent Behavior

			Student Pairs			
Pair	Student	Placement	Age	Raw	SS	CD
A	1	SC	6-0	36	56	-31
	5	I	6-7	35	47	-35
B	2	SC	7-5	39	50	-37
	7	I	7-8	37	42	43
C	3	SC	8-4	43	52	-36
	6	I	9-2	43	42	-43
D	4	SC	11-2	40	20	-63
	8	I	10-2	37	22	-62

Note: SC = Special Class; I = Inclusive, SS = Standard Score, CD = Cluster Difference Score

Instrumentation and Measurement

Inclusion Cost Analysis Scale (INCAS). A thorough search of the extant literature indicated that no specific instrument had been developed to facilitate data collection of actual cost ingredients in inclusive and integrated settings (Piuma, 1993). The few studies in existence have utilized recorded tuition costs (e.g.,

Salisbury and Chambers, 1994) rather than actual resource costs required to support included students in contrast to resources required with other approaches or placements. Piuma (1993) identified the need for a resource cost approach, that is, one which requires identifying actual instructional and planning time provided by teachers, paraprofessionals, and therapists; determining hourly average salaries and calculating the real costs of all personnel involved. Some previous analyses have not utilized average salary rates in these comparisons, and thus have "penalized" settings with more experienced teachers (Roahrig, 1994). A strategy to assess discrete transportation costs, supplies, equipment, space and its maintenance was also required. Piuma (1994) noted in her position paper on the subject that although several recent studies had measured actual resource use (cost) of students attending a variety of special education programs, these studies either did not focus on inclusive service delivery and a comparison of costs with non-inclusive programs (cf. Kakalik, Furry, Thomas and Carney, 1981; Lewis, Bruininks and Thurlow, 1988) or did not compare services for the population of students with severe disabilities. Previous studies also had not examined costs in conjunction with investigation of the outcomes of specific programs for students. Finally, Piuma noted these studies had not looked at the cross-over of shared costs between general and special education (1993).

An instrument or protocol to address each of these issues was required. After extensive discussion with project staff, Piuma developed the Inclusion Cost Analysis Scale (INCAS) for pilot use in this investigation (Piuma, 1994). Table 2 presents a summary sheet of the types of INCAS data collected for each student in the current study, and excerpts from the instrument's description follow.

[Insert Table 2 here]

Table 2

Cost Analysis Data Summary

Object Category	General Ed. Resources/ Sped Student/Year	SPED Resources/ General Ed. Student/Year	SPED Resources/ SD Student/ Year	Total Cost/ Sped Student Year
1. Personnel				
2. Instructional Supplies				
3. Transportation				
4. Repairs and Replacement of Equipment				
5. Equipment				
6. Improvements to Buildings and Rooms				
7. Cost of Space				
8. Curriculum and Development				
9. Staff Development				
10. Other Costs				

The Inclusion Cost Analysis Scale (INCAS) is a prototype instrument to assess the cost of resources used in a wide range of classrooms that integrate students with severe disabilities for part of the school day or include students for the full day in general education. Assessment procedures for the INCAS focused on measuring expenditures for staff time, supplies, transportation, repairs and replacement of equipment (adaptations), new equipment, building improvements, space, curriculum development and staff development in the context of a selected general education elementary class, where students participate in a range of social and academic activities. With the wide array of staffing patterns and instructional strategies used by inclusive classrooms, the INCAS focused on identifying the cost ingredients for one student and classroom at a time rather than attempting to characterize costs or expenditure patterns for "types" or "models" of inclusive

classrooms. Although the generalizability of outcome costs were then limited to the district in which the selected classrooms were located, the classroom parameter ensured that costs were real rather than assumed.

The goal of using the scale was to identify four units of measurement that significantly impact on district and state level acceptance or rejection of inclusive education. These four units include:

1. Cost per student with severe disabilities per year.

2. General education resources expended per student with severe disabilities per year.

3. Special education resources expended per student with severe disabilities per year.

4. Special education resources expended per general education student per year.

These data then provided the cost per student in each type of inclusive, integrated or special classroom observed, furnished information describing the contributions made by inclusive programs to general education students, and the contributions made by the general education program to students with severe disabilities.

Perceptions of Achievement Scale (POA) (Halvorsen, Neary and Hunt, 1994). This was the second protocol developed for use in the study. The investigators were

committed to obtaining outcome data in order to put the subject of cost within a meaningful context. The unit of data which was the focus was the IEP objective. Investigators randomly selected six objectives for each student for review by a group of three key IEP team members: special education teacher, parent, and general education teacher, who were asked to reach a consensus on each of the questions for each objective. Table 3 contains a sample data recording sheet for the scale.

[Insert Table 3 here

Table 3

Perceptions of Achievement Scale

Objective # Domain/Curricular Area:

A. What is the level of the student's progress on this objective?

1	2	3	4
No Progress	Some Progress	Good Progress	Completed

B. If Completed:

1. Does student initiate this:
   Yes _____ No _____
2. Is this skill generalized
   - Across activities? Yes _____ No _____
   - Across people? Yes _____ No _____
   - Across materials? Yes _____ No _____
   - Across settings Yes _____ No _____
   - Across related responses/behaviors? Yes _____ No _____

C. If Checked 2 (some progress) or 3 (good progress):

1. Does student initiate this task/skill/activity:
   Yes _____ No _____

2. Does student demonstrate consistency in performance level on this objective? (e.g., same level of assistance needed across people)
   Yes _____ No _____

Educational Assessment of Social Interaction (EASI) and Engaged Time Scales (Goetz, Haring and Anderson, 1990 version; Hunt and Farron-Davis, 1992). The type and quantity of social interactions among targeted students and others were measured using the EASI, an observational tool which has been utilized in a variety of studies where general and special education placements have been examined (cf. Hunt, Farron-Davis, Beckstead, Curtis and Goetz, 1994). The Engagement Scale (Hunt and Farron-Davis, 1992) is used "to analyze student participation in the events of the school day in terms of his or her level of engagement in activities, grouping patterns for activities, and the type of activities in which the student was engaged" (p 203-204). Table 3 presents a list of engagement variables and their definitions from the original instrument.

[Insert Table 4 here]

Table 4

Engagement Variables

Engagement variable	Definition
Level of Engagement	
Active	Student is actively engaged by himself or herself or within a small or large group activity. Student is participating through verbal/alternative communication or physical movement.
Passive	Student is passively engaged by himself or herself in small or large group activity. Student is participating by attending and waiting for his or her turn, giving direct eye contact, passively listening, and/or attending to the teacher or group members.
Not engaged	Student is not actively or passively engaged in activity. Student is either not attending to ongoing activity, not being attended by staff, or not assigned to a task or given materials.
Grouping	
Student alone	Student is physically alone (e.g., on the playground) or is working by himself or herself on an activity unrelated to the activity of other students in the area.
Student with others	Student is engaged in an activity with at least one other student.
Context	
Academic activity	
Basic skill/critical activity	Activity addresses content areas of communication, social and sensorimotor skills (basic skills), or functional skills in domestic, vocational, community or recreation-leisure domains (critical activity).
Lunch or recess	
Transition	Period between the end of the completed activity and the start of a new activity.

Reprinted with permission from Hunt, et al, (1994), p 204. From the Engagement Scale developed by Hunt and Farron-Davis (1992).

Scales of Independent Behavior (SIB) (Bruininks, Woodcock, Weatherman and Hill, 1985). In order to ensure similarity in students' needs and abilities across groups, this scale was utilized for purposes of matching pairs of students. The SIB was designed to assess social and adaptive behavior development and functional skills across home, school and community settings through an interview with each student's special education teacher. Teachers were asked to rate the specific student's

behavior on a scale of 0 (never) to 3 (always) for 32 items, which yielded a raw score converted to standard and cluster difference scores.

Implementation Site Criteria for Inclusive Programs (Halvorsen and Neary, 1994). In order to compare the costs and outcomes associated with inclusive and integrated placements, it was necessary to ensure basic equivalence across programs in terms of a set of program criteria or "best practices" (e.g., Simon, Karasoff and Smith, 1992). A validation study utilizing the criteria was conducted prior to the initiation of the cost study. The validation study conducted with the Site Criteria consisted of several steps: 1) identifying experts representing multiple constituencies: university professors/teacher trainers from special and general education, inservice trainers from both areas, department of education staff from the Comprehensive Personnel Development system, directors of special education, principals of regular schools, general education teachers, special education teachers, and parents of students receiving special education in inclusive schools, 2) contacting the 57 experts and requesting their participation, 3) mailing the criteria with a review form, and 4) analyzing the data received. Thirty-nine experts responded (68%) including all university personnel and inservice providers (12), two from the department of education, five directors of special education, four principals, two general education and ten special education teachers, and four parents. Items were retained which were rated as essential (five on a five-point scale) or very important (four on the scale) by at least 29 (85%) of the reviewers. Two items were eliminated through this process: principal attendance at IEP meetings, and formal ability awareness sessions provided ouside of core curriculum. The validated instrument was then utilized to guide a full day of observation and interviews in each setting, with a preset criteria for necessary points to be obtained or maximum difference between sites. The main areas addressed by the criteria

were: environmental considerations (facilities, etc.), school climate (ownership, support), staff collaboration and student integration (IEPs, instruction, general school activities, ongoing provision of information).

Procedure

Observational Data. Data were collected over a two-day period utilizing the EASI (Goetz, et al, 1990) and Engaged Time Scales (Hunt and Farron-Davis, 1992). Two to three students were observed for five ten-minute observations each per day, for a total of ten observations (100 minutes) per student. Times of day were randomly selected for students within each school and all observations occurred during a five-week period. The primary observer was a research associate who had experience utilizing these scales in several previous studies, and who worked as a consultant to the project. Project coordinators and the research associate were trained in the use of the instruments at a school in another district, and these coordinators served as observers for the purposes of establishing interrater reliability.

Observational data were collected across all aspects of the instructional day including academic and nonacademic activities in general education classrooms, periods in the school library, the cafeteria, and playground, nonacademic periods such as physical education and art, as well as in special education classes for the integrated group. Reliability data were collected on three of the eight students (two included, one special class) for both of their days, or for 37.5% of the observations.

Achievement of IEP objectives. Data were collected utilizing the Perceptions of Achievement Scale (Halvorsen, et al, 1994) in an interview format with the

special and general education teachers and parent/guardian. In two cases (one included student, one special class student) parents were unable to attend the meeting and were interviewed later by phone. In one case the interview took place in the context of the IEP annual review. In another case a bilingual teacher served as a translator for the parents at the meeting. These meetings were approximately one-half hour long, with all questions posed by the investigator (project coordinator) following a verbal explanation of the meeting's purpose. The questions, depicted earlier in Table 3, related to achievement of six randomly selected IEP objectives from each student's IEP. Respondents were asked to reach a consensus on their answer to the questions, such as, "What is the level of the student's progress on this objective?". Each group had copies of the scale and the particular objective selected. In the case of the separately interviewed parents, it was agreed beforehand that the investigator would share with the teachers any differing responses, and initiate further discussion among respondents as needed to reach consensus. A back-up position agreed to by all if consensus could not be reached was to vote, and to make note of the discrepant response when/if votes were 2 to 1. All data in this category were collected in a six-week period at the close of the school year.

Cost data collection. A series of processes were employed to collect the data on the INCAS protocol (Piuma, 1994) for each student. The first of these involved obtaining specific average salary data for each personnel category (e.g., teachers, paraprofessionals, related services staff) from the district's central office administrators. Costs for transportation, instructional supplies, space maintenance per classroom, equipment, etc. were also obtained in writing from the district. The average daily and hourly costs per staff person were then computed based on the different lengths of work years and work days for each category.

The second phase involved the actual data collection at the school site. Demographic data such as numbers of students in each class and actual school hours were obtained. Teacher schedules and related documents were provided indicating when students and staff were present in various settings. Finally, interviews were conducted with the special education teachers, paraprofessionals, related services staff as appropriate, and general education teachers to discuss their specific activities related to the targeted student(s). For example, in terms of special education personnel costs, staff in this category were asked how much time they spent in the specific general education/special education class each week, how much of this time was spent with the specific included or integrated student on the average, and how much with general education students in the inclusive classroom, (or with other special education students in the self-contained classroom). The investigator engaged in continuous recording throughout these discussions. Staff were also asked about preparation time spent on activities for the student, and about staff development time and participation as it related to the student(s). Documents such as class schedules, meeting minutes and written student programs (directions for staff), were utilized to support interview data. Follow-up phone calls were made to staff members interviewed for any additional questions, or to clarify previous responses.

Each interview was conducted at the school and lasted 30 minutes to one and one-half hours.

Results

Reliability. The mean percentage of interrater agreement on observations utilizing the EASI (Goetz, et al, 1990) across three of the eight students was 96.4%. The mean percentage of agreement on observations of the same three students with the Engaged Time Scales (Hunt and Farron-Davis, 1992) was 99.5%. Interrater agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Reliability checks were conducted on 37.5% of the total observations.

Cost Data. The first hypothesis of the study, that inclusive educational programming would not cost significantly more than integrated special class placements for students with similar needs was upheld. In fact, using average costs for each group, the special day class program cost $950 more per pupil (13%) than the inclusive program. Table 5 depicts per pupil costs for the pairs in each group across the categories of the INCAS.

[Insert Table 5 here]

There were notable differences in specific cost categories across the two groups as depicted in Table 6. For example, personnel and space cost significantly more for special class students than for included pupils, while instructional supplies and planning time costs were appreciably higher for the included group.

[Insert Table 6 here]

Table 5

Per Pupil and Pair Costs Across Categories

	Student #/ Category	Personnel	Instructional Supplies	Transportation	Space Costs	Curriculum Development	Staff Development	Other Planning Time	Total With Transportation	Total w/o Transportation
Pair A	#1. (SC)	6361	76	2468	415	-0-	-0-	1468	10,788	8320
	#5. (I)	4138	101	2468	129	75	-0-	1344	8255	5788
Pair B	#2. (SC)	6130	77	No Bus	416	-0-	-0-	1032	NA	7654
	#7 * (I)	(5086) 2928	101	No Bus	124	-0-	-0-	1344	NA	(*8176) = 6 hr fullday 4497 = K hrs (.55)
Pair C	#3 (SC)	6104	68	2468	400	-0-	-0-	1468	10,508	8,040
	#6 (I)	4069	101	2468	144	-0-	-0-	3037	9876	7408
Pair D	#4 (SC)	6704	78	2468	421	-0-	-0-	1368	11,039	8571
	#8 (I)	6009	101	2468	108	-0-	-0-	1194	9880	7412

Note: *5086 = Were the prorated personnel costs if this had been a full day program. The Kindergarten program was 3 hours long. I = Inclusion; SC = Special Class with Integration.

Table 6

Average Category Costs by Group

Group	Category	Average Cost	% Difference
I		$4,826	
SC	Personnel	$6,325	31% Higher
I	Space	$126	
SC		$413	228% Higher
I	Supplies	$101	35% Higher
SC		$75	
I	Planning Time	$1,730	30% Higher
SC		$1,334	

The differences in three of these categories are a clear function of each setting. For example, space costs per pupil were determined by dividing the total annual cost per classroom for maintenance, water, electricity, heat and janitorial services ($3,600) by the total number of students in each class. In inclusive classes, this ranged from 28 to 34 students, thus yielding the average modest amount of $126. In special classes, the same size classroom was utilized for nine/ten students with an additional cost factor calculated on the basis of each student's percentage of time integrated in a particular general education class.

In the case of supplies, the investigators utilized per pupil monies allotted since it would have been impossible to collect data on the amount of paper, pencils, etc. utilized for individual students. These allotments differ for general education

and special education students. Both allotments were used for the inclusive students' per pupil cost of supplies. The special education allotment plus prorated amount of general education supply allotment (based on percentage of time present) was used for special class students. In other words, Included Student #8 had the special education allotment of $44 plus the general education allotment of $57, for a total of $101. Her counterpart in the special class group, Student #4, had a special education allotment of $67 (higher than student #8 to include community-based expenses) plus 17% of the general education $57 allotment, since he spent 17% of his time in a fifth-grade class. His total allotment was $78.

Planning time costs were higher for included students, since the team was planning for a full day of school (100%). Special class students were integrated into general education an average of 36% of the time. The range was from 17% (student #4) to 47% (student #2). Only 30% more resources were required on average for included students in order to plan for 64% more time in general education. In addition, one included student's planning team time accounted for nearly 50% of the total planning time cost for four students. This team met for more time per month (three hours) and involved more professional and paraprofessional staff than any of the other teams.

There was an 82% difference between the average cost of paraprofessional time for the special class group ($2,296) and the included group ($1,265) In contrast, the general education teacher time or resources spent per student was 65% higher for the included group ($1,649) than for the special class group ($1,005). Included students were not receiving fewer related services. The average cost of these was $748 annually for included students, and $460 for special class students, with included costs 63% higher.

In addition to determining the total and mean costs of resources per student, we determined average general education and special education resources expended per student with severe disabilities as well as the special education resources expended on general education students. Table 7 depicts mean costs for each area.

[Insert Table 7 here]

Table 7

Annual General and Special Education Resource Contributions

Group	Special Ed to Special Ed Students	General Ed to Special Ed Students	Special Ed to General Ed Students
Included	$4,487 per pupil	$2,708 per pupil	$1,655 per general ed class ($59 per student)
Special Class	$6,894 per pupil	$1,253 per pupil	$138 across four general ed classes $34.50 per class ($1.23 per student)

General education contributed more than twice the amount in resources for included students as for special class students, and special education contributed only 65% as much in resources for included students as for special class pupils. This finding parallels the contrast in proportion of student time in the general education classrooms (x = 36% for special class students, 100% for those included). The resource benefits accrued to the general education classes and students from special

educators in the respective situations were also quite different. In the inclusive setting, special education teachers and paraprofessionals reported on the instructional time they spent with small and large groups of students, groups which did not always involve the included student. These data were then translated into hours per year with general education students using an average class size of 28 across four classrooms. This figure was $59 per student annually or $1,655 per inclusive classroom. In contrast, special class teachers and paraprofessionals spent their time only with the integrated student from their class, and faded this support out almost entirely over time. As a result, the only reported use of resources for general education students was teacher time (6 hours) providing some preparation of students to receive the student from the special class. This took the form of activities, presentation of information, and discussion, and translated to $138 over the year, or $1.23 per student, only 2% of that provided by special educators in inclusive classes.

Student Outcomes

Perceptions of Achievement. There were no differences between inclusive and special class/integrated groups in perceived achievement. Table 8 depicts the point values attributed to the team's responses regarding completion/good progress/some progress. Corresponding questions regarding generalization and initiation were responded to positively in nearly 100% of the cases for both groups, so these data are not depicted here.

[Insert Table 8 here]

Table 8

Perceptions of Achievement Scale Data

Student #	Special Class	Student #	Included
1	15	5	13
2	11	6	12
3	12	7	14
4	12	8	9
	50 points		48 points

Note: Completed objectives = 3 points; good progress = 2 points, some progress = 1 point.

Social interaction and engaged time. Six of eight hypotheses were sustained by the data on social interactions and engaged time. As indicated in Table 8, included students demonstrated more reciprocal interactions with nondisabled peers and general education teachers than their special class peers, and less interaction with special education teachers and paraprofessionals than special class students. This last finding corresponds with the cost-resource findings summarized above.

In terms of engaged time, included students also participated in more academic activities than their special class peers and were with others (less alone) than students from special classes.

The hypothesis that included students would initiate more reciprocal interactions that their special class peers was not upheld nor was the hypothesis that included students would be more actively engaged/less passive than the special class students. Integrated (special class) students were more actively engaged (less passive) than included students, and initiated more reciprocal interactions than included students. These data are also depicted in Table 9.

[Insert Table 9 here]

Table 9

Observational Data

	Included					SP. Class Integrated				
Student #	5	6	7	8	x	1	2	3	4	x
Category	Social Interaction									
Student Initiated Reciprocal	.13	.14	.10	.15	.13	.34	.18	.04	.14	.17
*Reciprocal With Peer	.39	.59	.16	.39	.38	.11	.34	.50	.13	.27
*Reciprocal With Gen. Ed. Teacher	.27	.41	.49	.36	.38	.21	.14	.09	.09	.13
*Reciprocal With Sp. Ed. Teacher	.04	-0-	.08	.09	.05	.14	.09	.25	.03	.12
*Reciprocal With Para	.30	-0-	.27	.04	.15	.48	.24	.08	.62	.35
	Engaged Time									
*Alone Total	-0-	.02	.04	.05	.027	.04	.04	-0-	.10	.04
*(With Others)	100%	.98	.96	.95	.97	.96	.96	100%	.90	.95
*Academic Activity	.77	.74	.61	.59	.68	.55	.30	.51	.48	.46
Not Engaged	.12	.32	.09	.03	.14	.11	.15	.01	.03	.07

* = Hypothesis held

Discussion

There were two overall important outcomes of the current pilot study: inclusive education program costs were actually lower than the special class program costs in this district, and included students were experiencing at least as positive outcomes from their educational programs as were the special class students. These results must be interpreted with caution given the student sample size and the nature of the data collection and analysis process, as discussed below. However, the results raise some interesting points for further elaboration as well as key questions for future investigations.

First, personnel category cost differences could be accounted for to a significant extent by the difference and amount of paraprofessional time spent with small groups of students in the special class, as opposed to paraprofessional time spent both with the included student as well as with small and large groups in the general education class. It is interesting to note the different use of paraprofessional resources across the settings, particularly since there is a prevailing assumption that inclusion will mean an increase in 1:1 support needed by previously segregated students. This was not the manner in which these resources were utilized for the majority of time in inclusive classrooms.

In terms of costs and benefits accrued, it is provocative to note that while planning time and its costs were comparable across settings - given the respective amounts of time students were participating in general education - the general educators with special class students reported that they were largely unaware of students' IEP objectives. This stood in marked contrast to the awareness of general

educators of the objectives of included students. One could reasonably argue that included students are likely to get higher quality instruction from an informed individual than from a teacher who is uninformed about a student's educational needs. General education teachers of integrated special class students talked mainly about the social value of the students' participation during the team interviews (Halvorsen, et al, 1994) and sometimes expressed surprise about specific objectives as they were discussed. Not surprisingly, they were generally unable to voice an opinion about the student's progress on these objectives.

We would argue that we are getting a much greater "bang for the buck" with the included students in this study. Their IEP objectives had been prevalent in planning the students' program design. Teachers knew where the goals were being addressed and when, through their ongoing team meeting process. The lack of information of the general educators of integrated or mainstreamed students highlights one of the critical differences between traditional mainstreaming/ integration and inclusive education: that included students are expected to be participating members of the class, with appropriate supports (e.g. curricular adaptation) and strategies to meet their educational needs. The included student is not simply present for "social reasons." The latter would seem to be an inadequate rationale to support a student's being integrated for 47% of the instructional day, or even for the average of 36%. The authors feel strongly that we are doing both educators and students a grave disservice when we fail to inform members of the educational team of critical information.

It was also interesting to note the differences in types of objectives that appeared on the IEPs of students in each group. Although a formal content analysis was not conducted, a tally of the randomly selected objectives used in the POA

indicated that more of the included students' objectives were academically related, as would be expected by the activity data collected in the Engaged Time observations. Further review of these objectives indicated that special class students also had objectives related to ceasing specific behaviors (stop thumb-sucking, stop whining). Included students did not have any of this type. This may simply indicate a difference in objective-writing style, as the included students' objectives were all written as positive behavior statements, or it may indicate a difference in focus or emphasis. For example, the inclusive support teacher may be focusing more on proactive objectives, i.e., what the student will do, rather than what s/he will not do, reflecting best practices in terms of instructional program development and implementation (Hunt, Goetz & Anderson, 1986). The sample and observation period were both too limited to make conclusions about this. However, we believe that general educators will find positive statements about behaviors and skills to be learned more understandable and workable than statements about behavior removal.

The observational data collected utilizing the EASI (Goetz, et al, 1990) and Engaged Time Scales (Hunt & Farron-Davis, 1992) presented some interesting issues. Our hypothesis that more student-initiated reciprocal interaction would occur in inclusive classrooms was not upheld, nor was the hypothesis that students would demonstrate a higher level of active engagement in inclusive classes (See Table 9). There are several possible explanations. The investigators observed that the general education classrooms tended to be teacher-directed, face-front situations, with a large proportion of lecture and/or individual seat work during the periods when data were collected, thus diminishing opportunities for appropriate interaction initiated by students. This was generally true across the two inclusive schools and the school with special class students, however, special class students also spent an average of

64% of their day in special education environments. Small group work in these settings and the informality of the classroom climate may have provided increased opportunities for student initiation there. This would also explain the differences in terms of engagement, or lack of it. Students in a didactic classroom lecture are frequently less engaged than those involved in structured group work (Hunter, 1982; Slavin, 1991). This applies to all students, not only those with disabilities, and raises the critical issue of effective instruction. Many of the teachers in the schools studied were self-described as "traditional" in style and less likely to be involved with activity-based cooperative group instruction in core subjects. An important area for future study would be a comparison of engaged time and student-initiated interaction in traditional and cooperatively grouped classrooms. Such an investigation would require both clear definitions of the parameters of traditional and cooperative, activity-based instruction, including expected proportions of instructional time spent using these strategies, and matching of included students on specific variables such as communications modes, etc. It would be extremely valuable to collect these data on a sample of general education students in each environment as well.

Without such data, we cannot offer specific conclusions, but we can state our conviction that the inclusion of students in general education should not result in less active opportunities for appropriate learning. The staff resources that inclusive education brings to the general education classroom can provide new opportunities for alternative instructional strategies as rapport builds between the players, and some co-teaching becomes possible (cf. Rainforth, 1992).

Finally, specific circumstances occurred which may have influenced the outcomes for included student #6, whose high level of non-engagement stands out

(.32). A review of the data indicated that the student was observed one day when a substitute teacher was present and the second time when two grades were combined for a foreign language activity. It was also atypical that these randomly selected periods occurred during times when she did not have special education teacher or paraprofessional support present, although she was receiving this in-class support for an average of 1.4 hours per day. In retrospect it is clear that additional observation times should have been selected for her to ensure observation of more typical situations.

Limitations. There were numerous limitations in the current study, the most obvious of which was the small sample size of students and the single district. A second limitation was in the use of new instrumentation, some of which was piloted here for the first time. The use of the cost analysis instrument in this context was instructive for future investigators. For example, documents (e.g., schedules) and staff interviews were the primary source of information about the amount of time spent by personnel working with specific students. The only way to be assured of the accuracy of such estimates would be to conduct time-sampling observations of the various teachers and support staff in these settings. This was beyond the resources of the current study, and so it is important to note that the times and thus resources attached to the amounts of time are teacher or staff estimates.

Another limitation in the data collection is the fact that only direct classroom services/facilities data were collected. For example, principal time, school psychologist assessment time, and district special education administration times were not collected or evaluated. Thus, per student costs do not fully reflect total

program costs. We were interested most in actual hands-on classroom costs, and chose to consider related costs a constant for the purposes of this initial investigation.

Special class and included student groups groups in this study were very heterogeneous in nature in terms of student needs. This is a positive program feature and one which enabled the comparison. This may also be the reason why average costs of each program were lower than some reported costs. In other districts, currently included students may be those with multiple, low-incidence needs, and there may be no comparison group attending special classes. As a result it may appear that the inclusive program is a highly expensive one. The reality may be that it is expensive to meet these students' critical needs regardless of their placement. In our experience we have found that these students' many needs for technology and communication support may be being fully met for the first time in the general education class, where the classroom teacher adds an additional voice advocating for these services. The more visible students are, the more obvious their needs for specific services or adaptations. For this reason, with students who experience multiple disabilities, we may see an "artificial" rise in program costs at the outset of inclusion.

Finally, this district was a participant in a federally funded technical assistance effort with the state of California (PEERS OUTREACH, #H086U20023), through which training resources were received, as well as some monies for released time. For this reason, some of the start-up costs that are inherent in any innovation did not present additional expenditures. At the time of data collection, inclusive education had been operating at these schools for two full years. The district continues to have an Inclusive Education Task Force, has developed and adopted a

handbook on inclusive education and has a memorandum of understanding with the teachers' association regarding inclusive practices.

In conclusion, the initial investigation demonstrated that inclusive education does not cost more under these conditions and did result in equivalent or better outcomes for students with severe disabilities.

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